



NASA's Strategic Capabilities Assets Program

NASA GODDARD SPACE FLIGHT CENTER

THE SPACE ENVIRONMENT TEST CHAMBER



The Goddard Space Flight Center Space Environment Simulator (SES) is a large cryopumped thermal vacuum chamber capable of achieving ultra-low pressure and a wide range of thermal conditions. Test articles are loaded through the top of the chamber using the building bridge crane. Personnel, equipment, and small test articles enter through a side door at the chamber payload table level. The chamber is used for thermal vacuum and thermal balance testing, as well as for baking out large test items. The SES provides a class 10,000 clean room environment when the dome is closed. The chamber contains an integral nitrogen shroud that is capable of gaseous and liquid nitrogen temperatures. An ancillary helium refrigerator can provide 1.0 kilowatt of cooling at 20 Kelvin to auxiliary test shrouds.

TECHNICAL SPECIFICATIONS

Test pressure	1 x 10 ⁻⁷ Torr
Shroud temperature	GN ₂ mode -100 °C to 80 °C LN ₂ mode -180 °C
Chamber pumping speed	7 cryopumps at 2.1 x 10 ⁵ liters/second Turbomolecular pump 6,000 liters/second

PHYSICAL CHARACTERISTICS

Test volume	8.23 meters in diameter x 12.19 meters high
Payload support	9,072 kilograms
Removable floor	11,794 kilograms
View ports	2 each at 30 centimeters in diameter

INTEGRAL INSTRUMENTATION

Pressure	Capacitance manometer (2) – Atm to 1 x 10 ⁻³ Torr Ion gauge (4)–10 ⁻³ Torr to ultimate
Payload temperature	759 thermocouple channels
Contamination monitors	5 TQCMs, coldfinger, residual gas analyzer, scavenger plate

CONTACT INFORMATION

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